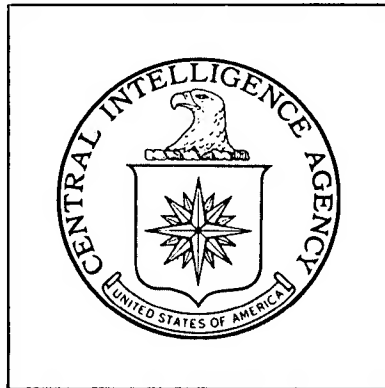


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**DIRECTORATE OF  
INTELLIGENCE**

**Industrial Facilities  
(Non-Military)**

*Basic Imagery Interpretation Report*

**Chu-hsien Chemical Plant**

**Chu-hsien, China**



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Directorate of Intelligence  
Imagery Analysis Service

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INSTALLATION OR ACTIVITY NAME		COUNTRY	
Chu-hsien Chemical Plant		CH	
UTM COORDINATES	GEOGRAPHIC COORDINATES	COMIREX NO.	WAC-PIC No
50RPG848986	28-54-30N 118-53-00E	None	493-8A2
MAP REFERENCE			
2nd RTS. USATC 200. Sheet M0493-20HL. 3rd edition Jan 68. Scale 1:200,000			
(SECRET)			
LATEST IMAGERY USED		NEGATION DATE (If required)	
		Not Required	

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## ABSTRACT

The basic production facilities at the Chu-hsien Chemical Plant were nearing completion on photography of September 1963, the earliest coverage used for this report. These facilities appeared complete and operational ten months later. Construction of facilities for urea production was initiated in July 1964 and was complete on photography of November 1966. Large stockpiles of raw materials observed on photography of May 1965 and all subsequent coverage indicated a high rate of production. Major products of this plant are ammonium sulfate, urea, calcium carbide, acetylene, chlorine, caustic soda, and hydrochloric acid.

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## INTRODUCTION

The Chu-hsien Chemical Plant is located 3.8 nautical miles (nm) south-southeast of the center of Chu-hsien and is served by a spur of the Chiang-shan to Chu-hsien rail line (Figure 1). A large water treatment facility is located in the southeast corner of the installation, and a transformer substation is in the northeast corner (Figures 2 and 3).

## BASIC DESCRIPTION

### Physical Features

This chemical plant measures approximately 5,800 by 3,900 feet and occupies about 340 acres. The plant is secured by a wall on three sides. An administration area is situated outside the east security wall (Figure 3). An extensive workers' housing area has been constructed 0.4 nm to the east of the administration area near the Wu Chi River.

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25X1Operational Functions

This large integrated chemical plant produces a wide range of chemicals. The major end products include nitrogenous fertilizers, chlorine, caustic soda, hydrochloric acid, and probably calcium cyanamide. The specific production areas and major facilities are depicted and annotated on the line drawing (Figure 3).


Fertilizer Production - Hydrogen and nitrogen obtained from the water gas retorts are purified and piped to the ammonia production area. The facilities in these two areas are nearly identical to those at the Kuang-chou Chemical Fertilizer Plant. Three ammonia associated, unidentified process buildings are located near the ammonia compressor building. Contact sulfuric acid is produced from pyrite in a typical Chinese acid plant in Area C. Pipelines from the above two intermediate production areas can be traced on photography to the ammonium sulfate production area.

Carbon dioxide, which is obtained from the gas purification equipment (Item 12), and ammonia are reacted in an autoclave to form ammonium carbamate. This solution is dehydrated and crystallized to form urea. The mixing and blending building, constructed concurrently with the urea facilities, is probably associated with both ammonium sulfate and urea, since it is situated between these two production areas.

Basic Industrial Chemical Production - Lime is interacted with coke or coal in an electric furnace to form calcium carbide. Some of this calcium carbide is added to water; acetylene is released while calcium hydroxide remains as a by-product to be used to make bleaching powder (chlorinated lime). Calcium cyanamide is probably also produced in this area, since the necessary raw materials and building space are available. Bleaching powder is possibly manufactured from slaked lime and chlorine, while polyvinyl chloride is possibly made from acetylene and hydrochloric acid at this plant.

Chlorine and caustic soda are produced by the electrolysis of brine. The hydrogen set free during electrolysis and some of the chlorine yielded are used to produce hydrochloric acid. There is a possible insecticides production facility at this plant. Chlorine is used in the production of several insecticides. A pipeline, probably for chlorine, runs between the possible insecticides production area and chlorine and caustic soda production area.

Status and Activity


Analysis of photography on  showed most of the basic facilities to be in the final stages of construction or complete. Atmospheric emissions were rising from the large stack in the sulfuric acid plant and the ammonium sulfate reactor building. This indicates that the ammonia section must also have been in operation at this time, although not all of the gas purification equipment had been installed. Vapors rising from the kilns and stockpiles of limestone in the calcium carbide section also indicated an operational status. Several support buildings and the unidentified facility in Area M were still under construction on this earliest coverage.

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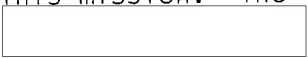
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By  all construction previously observed appeared to be complete. The urea production facilities were in the initial stages of construction, as was the mixing and blending building adjacent to it. The unidentified process building to the southeast of the compressor building was in the midstage of construction.

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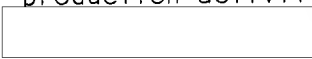
On photography of  the urea production section appeared to be in the final stages of construction, and the unidentified process building appeared complete.

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Photographic coverage of  showed all previous construction to be complete. Stockpiles of raw materials indicated that production was proceeding throughout the plant. The unidentified process buildings and gasholders in Area L were first seen under construction on this mission. The construction in Area L appeared to be nearing completion by 

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Area N appeared to be complete as early as 1963, but no signs of production activity have appeared on any subsequent photography through 

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There was no significant rail traffic observed in the plant area on the available photography.

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FIGURE 2. CHEMICAL PLANT, CHU-HSIEN, CHINA.

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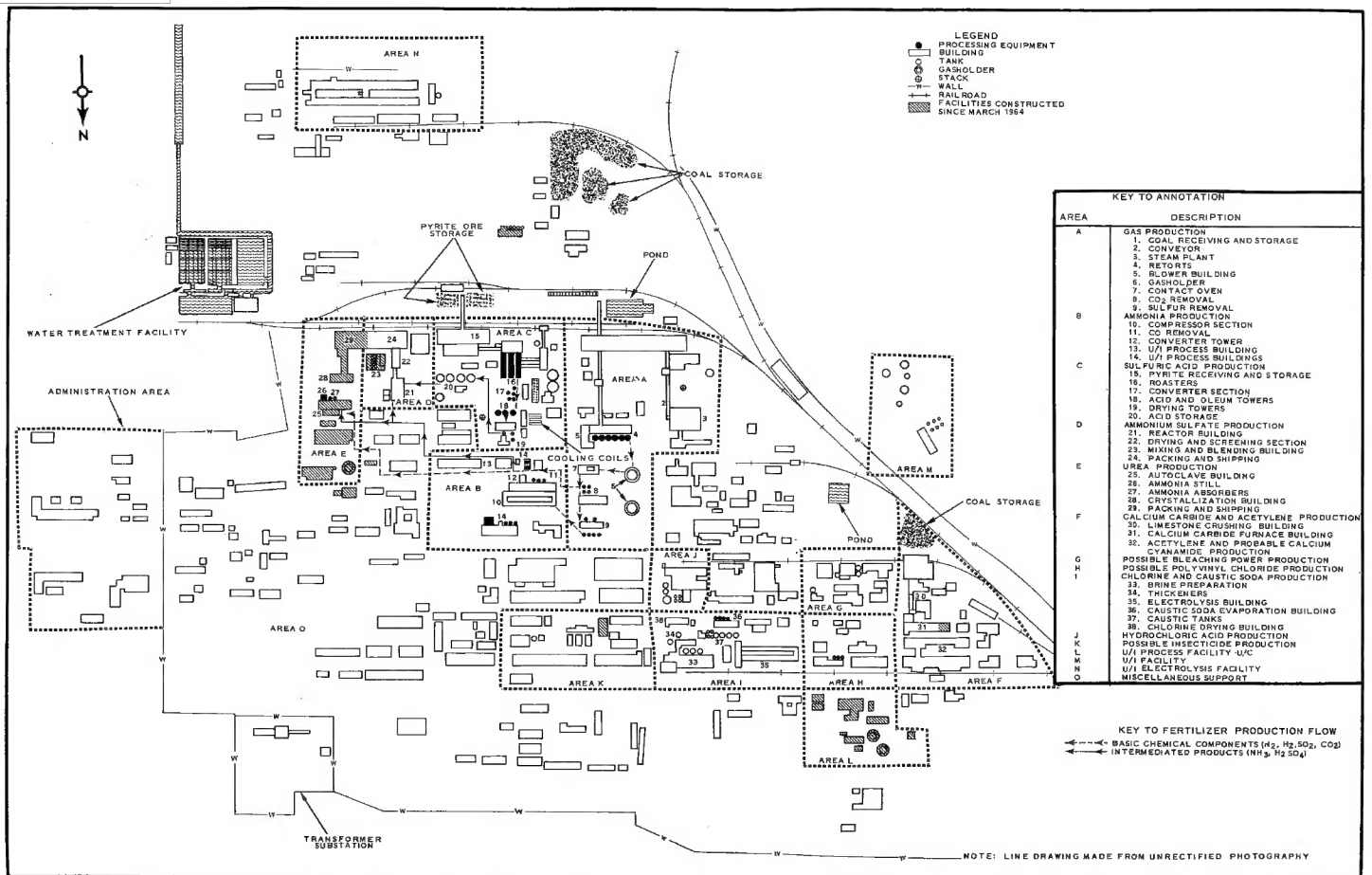


FIGURE 3. CHEMICAL PLANT, CHU-HSIEN, CHINA

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REFERENCES

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Maps or Charts

2nd RTS. US Air Target Chart, Series 200, Sheet M0493-20HL. 3rd edition.  
January 1968. Scale 1:200,000 (SECRET)

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Requirement

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